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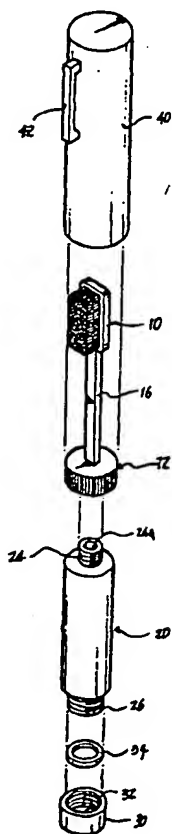
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(54) Title: **PORTABLE TOOTHBRUSH**

(57) Abstract: This invention, toothbrush, is easy to carry and convenient and hygienic to use. This invented toothbrush has both tooth brush and tooth paste. The toothpaste tube has inlet and outlet to charge and discharge the toothpaste respectively. The protective cap of toothbrush can be used as a toothbrush holder when brushing teeth. This invention is composed of: a round toothpaste tube made of soft resin materials has outlet and inlet at top and bottom of the tube respectively, a toothbrush with a supplementary and an outlet caps, which are assembled to the toothpaste tube outlet, a transparent cap, which protects and covers the brush and is used as a toothbrush holder when brushing teeth by inserting it to the outside of the supplementary cap in the toothpaste tube direction, and an inlet cap.



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## PORTABLE TOOTHBRUSH

### BACKGROUND OF THE INVENTION

#### 1. Field of the Invention

The present invention relates to a portable toothbrush, which has a built-in toothpaste tube and is easy to carry and convenient and hygienic to use.

#### 2. Description of the Related Art

Generally, a toothbrush which is used for trip or travel requires portability and small volume to carry. There are many types of toothbrush invented for this purpose. One is a fold type toothbrush whose holder can be folded into a half when it is not in use. The other one is cap-holder type toothbrush which has a cap covering brush is used for holder when brushing teeth by inserting the cap into the end of the toothbrush. However the conventional portable toothbrushes have some inconveniences as a separate toothpaste is to be carried. There is another invention to solve this problem. That invention had a toothbrush holder made of soft tube with the toothpaste inside. The toothpaste was discharged through small holes below the brush when pressure was applied to holder. This type of toothbrush has many disadvantages. One is that the toothbrush consumes much toothpaste because the toothpaste is fed continuously while brushing the teeth as the passage of toothpaste is open and pressure is continuously applied to the toothbrush holder, i. e., toothpaste tube while brushing teeth. Also it has another problem that much toothpaste is

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flushed away when cleaning the brush with water after brushing teeth. In addition, it looks bad and it is bad for the health as toothpaste is always exposed in the air and consequently susceptible to bacteria and virus.

### **SUMMARY OF THE INVENTION**

Therefore the object of this invention is to make a toothbrush which is easy to carry and hygienic and convenient to use. To achieve the above object, this invention is composed of:

a round toothpaste tube made of soft resin materials with outlet and inlet at top and bottom respectively,

a toothbrush with a supplementary and an outlet cap, which are assembled to the toothbrush tube outlet,

a transparent cap, which covers and protects the brush and is used as a toothbrush holder when brushing teeth by inserting it to the outside of the supplementary cap,

and an inlet cap.

### **BRIEF DESCRIPTION OF THE FIGURES**

Fig. 1 shows each disassembled component of the invention, toothbrush.

Fig. 2 shows the outline of toothbrush when not in use.

Fig. 3 shows the outline of toothbrush when in use.

Figures 1 and 2 show the composition of the portable toothbrush in order to example this invention. In Fig. 1, the portable toothbrush has a toothpaste tube 20 which has toothpaste inside and inlet and outlet and supplies toothpaste when it was pressed, a toothbrush 10 which has an outlet and a supplementary cap, and a transparent cap 40 which protects and covers brush and can be used for toothbrush holder when brushing teeth.

The toothpaste tube 20 made of soft resin materials is a round tube with inner space 22 and has outlet 24 and inlet 26 at reduced cross sections at top and bottom. The outlet 24 and inlet 26 have a screw outside and holes 24a, 26a connected to the inner space 22. The toothbrush 10 with a supplementary cap 12 at bottom shall be located at top of the toothpaste tube 20. The toothbrush 10, holder 16, outlet 14 and supplementary caps 12 at lower part are solid type. Note that the outlet cap 14 having screw inside as shown in Fig. 2 and supplementary cap 12 are also solid type. The outlet cap 14 shall be assembled to the upper outlet 24 of the toothpaste tube 20 and opens and closes the outlet 24. The supplementary cap 12 strengthens the supporting force as the bottom of supplementary cap contacting with the upper parts of toothpaste tube when outlet cap 14 was fastened to the tube outlet and prevent holder from being bent during brushing teeth.

The inlet 26 of the lower side of the toothpaste tube 20 is used to charge toothpaste into the inner space 22 of the toothpaste tube 20. When toothpaste charge was completed, inlet cap 30 with packing 34 is fastened to inlet 26 by

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screw 32. The transparent cap 40 with a hook shall cover the brush 10. The transparent cap 40 shall be inserted to the outside of the supplementary cap 12 above toothpaste tube 20 during brushing teeth to be used as a toothbrush holder as shown in Fig. 3.

### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Charge the toothpaste into the inner space 22 of the toothpaste tube 20 through inlet 26 of the toothpaste tube 20, then insert the transparent cap 40 in order to protect brush 10 after fixing inlet cap 30. This toothbrush is portable like as fountain pen. When using this toothbrush, first open the transparent cap 40 and unfasten the outlet cap 14 from the outlet 24 by turning the supplementary cap 12 counter clockwise. Then discharge toothpaste 50 from the toothpaste tube by applying pressure to the toothpaste tube 20 with hands. Put proper amount of toothpaste on the brush and fasten the outlet cap 14 to the outlet 24. Then insert the transparent cap 40 to the outside of the supplementary cap 12 above the toothpaste tube 20 as shown in Fig. 3. Then it is ready to start brushing teeth by holding the transparent cap 40, i. e., toothbrush holder. After finishing brushing teeth, clean the toothbrush with water, disconnect the transparent cap 40 from the outside of supplementary cap in the toothpaste tube 20 side, and then insert it to the supplementary cap 12 in brush side as shown in Fig. 2. The portable toothbrush can be carried in pocket like as fountain pen, or can be stored in the handbag or bag. As shown above, this invention is easy to carry and convenient as it carries toothpaste all the time and hygienic as toothpaste inlet and outlet are closed when they are not in use.

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WHAT IS CLAIMED IS:**[Claim 1]**

A portable toothbrush which has characteristics of :

a toothpaste tube which is made of soft resin materials and has outlet and inlet at top and bottom of the tube respectively,

a toothbrush which has an outlet cap to be assembled to the outside of outlet in toothpaste tube side,

a transparent cap which covers brush and can be used as a holder of toothbrush.

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FIG. 1

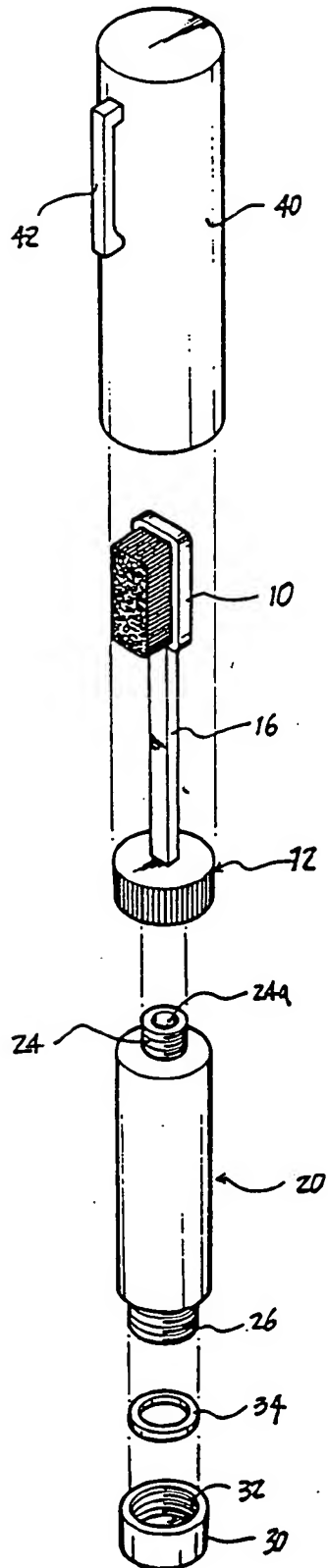
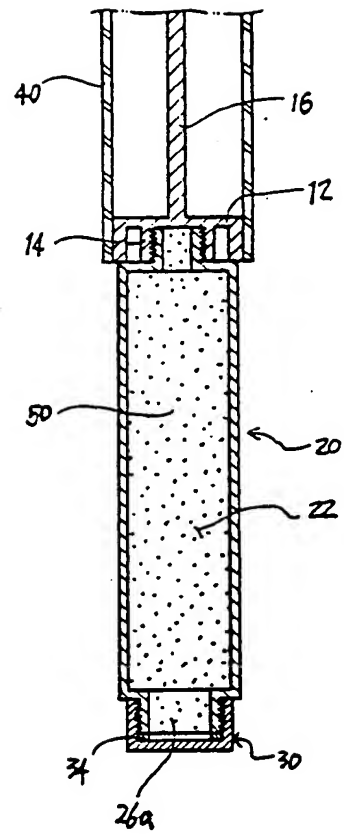
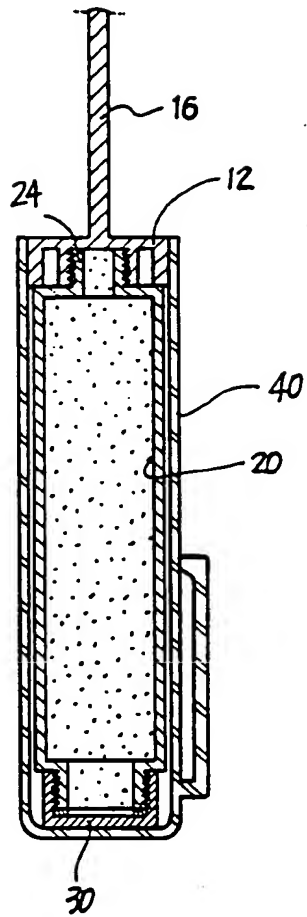


FIG. 2



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FIG. 3





# INTERNATIONAL SEARCH REPORT

International application No.  
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<b>CLASSIFICATION OF SUBJECT MATTER</b> IPC <sup>7</sup> : A 46 B 11/02 According to International Patent Classification (IPC) or to both national classification and IPC		
<b>B. FIELDS SEARCHED</b> Minimum documentation searched (classification system followed by classification symbols) IPC <sup>7</sup> : A 46 B Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) WPI, EPODOC, PAJ		
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>		
Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4199270 A (TOMASINI) 22 April 1980 (22.04.80) totality.	1
X	DT 2646457 A1 (TOMASINI) 28 April 1977 (28.04.77) totality.	1
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> See patent family annex.		
* Special categories of cited documents: „A“ document defining the general state of the art which is not considered to be of particular relevance „E“ earlier application or patent but published on or after the international filing date „L“ document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) „O“ document referring to an oral disclosure, use, exhibition or other means „P“ document published prior to the international filing date but later than the priority date claimed „T“ later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention „X“ document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone „Y“ document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art „&“ document member of the same patent family		
Date of the actual completion of the international search 2 May 2000 (02.05.2000)		Date of mailing of the international search report 31 July 2000 (31.07.2000)
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Information on patent family members

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